

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the above-referenced application:

1 1. (Previously presented) A flexible circuit having vias disposed to
2 minimize discontinuity in a ground plane separating opposing transmission lines, said
3 flexible circuit comprising:
4 a first type of electrical connection pad array disposed on a first surface of said
5 flexible circuit, wherein at least one pad of the first type of electrical connection pad
6 array is electrically coupled to a first transmission line that lies along the first surface;
7 a second type of electrical connection pad array disposed on a second surface
8 of said flexible circuit and offset from the first type of electrical connection pad array,
9 wherein at least one pad of the second type of electrical connection pad array is
10 electrically coupled to a second transmission line that lies along the second surface
11 and wherein said second type of electrical connection pad array is arranged to have a
12 higher areal density than said first type of electrical connection pads; and
13 an intermittent ground plane arranged substantially parallel to and interposed
14 between the first and second surfaces of said flexible circuit, said flexible circuit
15 configured with vias that pass entirely through the flexible circuit and arranged along
16 an axis substantially orthogonal to the first and second surfaces, the vias disposed
17 proximate said first type of electrical connection pad array and extending through
18 breaks in the intermittent ground plane to electrically couple said first transmission
19 line and said second transmission line, such that said vias minimize discontinuity in
20 said intermittent ground plane and wherein the at least one pad of the first type of
21 electrical connection pad array is collocated with a respective via.

1 2. (Original) The flexible circuit as described in Claim 1 wherein said
2 first type of electrical connection pads are flip-chip pads.

1 3. (Original) The flexible circuit as described in Claim 1 wherein said
2 first type of electrical connection pads are wirebond bond pads.

1 4. (Original) The flexible circuit as described in Claim 3 wherein at
2 least one of said plurality of vias is coincident with one of said plurality of wirebond
3 bond pads.

1 5. (Original) The flexible circuit as described in Claim 2 wherein at
2 least one of said plurality of vias is coincident with one of said plurality of flip-chip
3 pads.

1 6. (Original) The flexible circuit as described in Claim 4 wherein at
2 least one of said plurality of wirebond bond pads is substantially tear-dropped shape.

1 7. (Original) The flexible circuit as described in Claim 5 wherein at
2 least one of said plurality of flip-chip pads is substantially tear-dropped shape.

1 8. (Original) The flexible circuit as described in Claim 1 wherein said
2 first type of electrical connection pads are configured for coupling an integrated
3 circuit thereto.

1 9. (Original) The flexible circuit as described in Claim 1 wherein said
2 first type of electrical connection pads are configured for coupling an optical module
3 thereto.

1 10. (Original) The flexible circuit as described in Claim 1 wherein said
2 second type of electrical connection pads are a ball grid array or pin grid array.

1 11. (Currently amended) An electrical connection assembly having
2 vias disposed to combine electrical discontinuity, said electrical connection
3 comprising:

4 a flexible circuit comprising a ground plane separating a first surface and a
5 second opposing surface, said first surface having a first transmission line and said
6 second surface having a second transmission line; and

7 vias that pass entirely through the flexible circuit, the vias closest to a first
8 region of electrical connection pads configured to receive a wirebond and offset from
9 connectors within a second region of electrical connection pads on said second
10 opposing surface, the second region of electrical connection pads arranged to have a
11 higher areal density than electrical connection pads in the first region of electrical
12 connection pads, one of said vias electrically coupling said first transmission line and
13 said second transmission line wherein said wirebond generates electrical discontinuity
14 and said via generates electrical discontinuity and wherein said via is proximate said
15 first region of electrical connection pads for substantially collocating said electrical
16 discontinuity caused by said wirebond and said electrical discontinuity caused by said
17 via, thereby minimizing discontinuity in the electrical connection assembly.

1 12. (Original) The electrical connection assembly as described in
2 Claim 11 wherein said first region of electrical connection pads comprises at least one
3 via capture pad.

1 13. (Original) The electrical connection assembly as described in
2 Claim 12 wherein said via capture pad is substantially teardrop shaped.

1 14. (Currently amended) The electrical connection assembly as described
2 in Claim 11 ~~further comprising a wherein the~~ second region of electrical connection
3 pads ~~comprising~~ comprises a ball grid array or pin grid array.

1 15. (Original) The electrical connection assembly as described in
2 Claim 11 wherein said first region of electrical connection pads are configured for
3 coupling an optical module thereto.

1 16. (Original) The electrical connection assembly as described in
2 Claim 14 wherein said first region of electrical connection pads has an areal density
3 less than said second region of electrical connection pads.

1 17. (Original) The electrical connection assembly as described in
2 Claim 16 wherein said first region of electrical connection pads are a linear array of
3 pads.

1 18. (Currently amended) A circuit assembly having vias disposed
2 proximate a plurality of bond pads to minimize electrical discontinuity in said circuit
3 assembly, said circuit assembly comprising:

4 a flexible circuit comprising a first surface and a second opposing surface
5 separated by a ground plane, said first surface having a first conductive layer and said
6 second surface having a second conductive layer;

7 said plurality of bond pads coupled to said first conductive layer and
8 configured to receive a wirebond electrical connection, said bond pads offset from
9 connectors on said second surface;

10 electrical connection pads coupled to said second conductive layer configured
11 to electrically couple an external electrical assembly to said second conductive layer;
12 and

13 vias that pass entirely through the flexible circuit, the vias collocated with said
14 plurality of bond pads configured to receive a wirebond and offset from connectors on
15 said second opposing surface, said vias enabling electrical coupling of said first
16 conductive layer and said second conductive layer, said vias disposed to minimize
17 discontinuity in said circuit assembly, wherein said plurality of bond pads are
18 disposed with an areal density less than said connection pads.

1 19. (Original) The circuit assembly as described in Claim 18 wherein
2 said plurality of bond pads are via capture pads.

1 20. (Original) The circuit assembly as described in Claim 18 wherein
2 said plurality of bond pads are configured for coupling an optoelectronic device
3 thereto.

1 21. (Original) The circuit assembly as described in Claim 18 wherein
2 at least one of said vias shares one of said plurality of bond pads.

1 22. (Original) The circuit assembly as described in Claim 21 wherein
2 at least one of said plurality of bond pads is substantially tear dropped shaped.

1 23. (Canceled)